

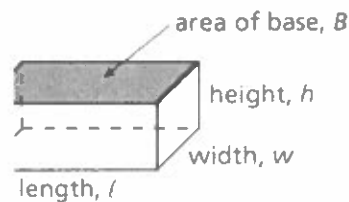
# VOLUME OF RECTANGULAR PRISMS

8.4

ESSENTIAL QUESTION: How can you find the volume of a rectangular prism with fractions?

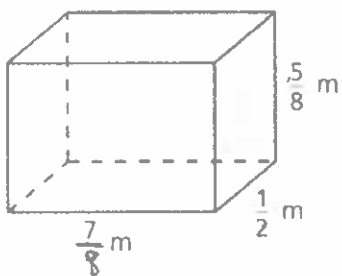
## VOLUME OF A RECTANGULAR PRISM ->

Volume  $\rightarrow$  is a measure of the amount of space a solid has.  
 Volume (V) is the product of the area of the base and the height of the prism.



$$V = lwh$$

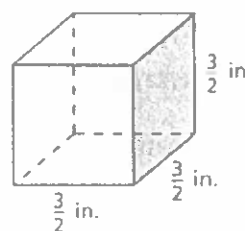
Find the volume of each prism



$$V = \frac{7}{8} \cdot \frac{1}{2} \cdot \frac{5}{8}$$

$$V = \frac{7}{16} \cdot \frac{5}{8}$$

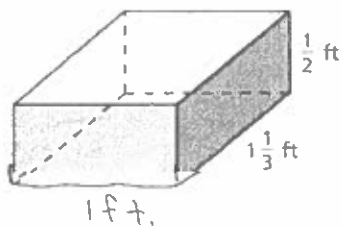
$$V = \frac{35}{128} \text{ m}^3$$



$$V = \frac{3}{2} \cdot \frac{3}{2} \cdot \frac{3}{2}$$

$$V = \frac{27}{8} \text{ in}^3$$

$$V = \frac{27}{8} \text{ in}^3 \text{ or } 3 \frac{3}{8} \text{ in}^3$$

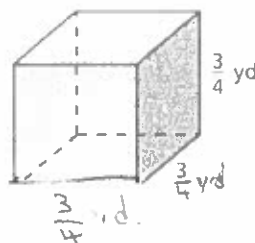


$$V = 1 \cdot \frac{1}{3} \cdot \frac{1}{2}$$

$$V = \frac{1}{6} \cdot \frac{1}{2}$$

$$V = \frac{1}{12} \cdot \frac{1}{2}$$

$$V = \frac{1}{24} \text{ ft}^3$$



$$V = \frac{3}{4} \cdot \frac{3}{4} \cdot \frac{3}{4}$$

$$V = \frac{27}{64} \text{ yd}^3$$

45,220 pounds of dirt can fit in the dump truck.

One cubic foot of dirt weighs about 70 pounds. How many pounds of dirt can the dump truck haul when it is full?

$$V = \frac{4^3}{4} \cdot 8 \cdot 17 \quad V = 646 \text{ ft}^3$$

$$V = \frac{119 \cdot 8^2}{1} \cdot \frac{17}{1}$$

$$V = \frac{38}{1} \cdot \frac{17}{1}$$

To find out how much dirt can fit in the dump truck multiply  $646 \cdot 70 = 45,220 \text{ lbs}$



write and solve an equation to find the height of the computer tower.



Volume =  $1792 \text{ in.}^3$

$$V = l \cdot w \cdot h$$

Equation  $\rightarrow 1792 = 16 \cdot 7 \cdot h$

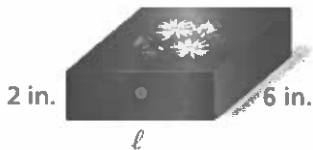
$$\begin{array}{r} 112 \overline{) 1792} \\ - 112 \downarrow \\ \hline 672 \\ - 672 \\ \hline 0 \end{array}$$

$$\frac{1792}{112} = \frac{112h}{112}$$

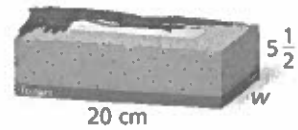
$$16 = h$$

Write and solve an equation to find the missing dimension of the prism.

$$\text{Volume} = 72 \text{ in.}^3$$



$$\text{Volume} = 1375 \text{ cm}^3$$



Equation  $\rightarrow 72 = 2 \cdot 6 \cdot L$

$$\frac{72}{12} = \frac{12L}{12}$$

$$6 = L$$

Equation:  $1375 = 20 \cdot 5 \frac{1}{2} \cdot w$

$$1375 = \frac{10}{1} \cdot \frac{11}{2} \cdot w$$

$$\frac{1375}{110} = \frac{110w}{110}$$

$$\begin{array}{r} 12.5 \\ 110 \overline{) 1375.0} \\ - 110 \downarrow \\ \hline 275 \\ - 220 \downarrow \\ \hline 550 \\ - 550 \\ \hline 0 \end{array}$$

$$12.5 = w$$